Final Technical Status Report

For

BRG-056

Sustainable Precision Green Manufacturing Technologies for Indirect Fire Systems

Reporting Period: through 31 March 2014

CLogic LLC

Initiative Team Technical POC

Leonard J. Mecca
CLogic, LLC
26 Sky View Drive
Avon, CT 06001
Office: 860-324-2227
E-mail: ljmecca@clogicdefense.com
www.clogicdefense.com

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
31 MAR 2015	**Final**	

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Sustainable Precision Green Manufacturing Technologies for Indirect Fire Systems	**BAA# W15QKN-08-R-0252**
	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER **N/A**
6. AUTHOR(S) **Herbst /Diana-Lynn**	5d. PROJECT NUMBER **BRG-056**
	5e. TASK NUMBER **N/A**
	5f. WORK UNIT NUMBER **N/A**
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **CLogic Defense 15 Farview Terrace Paramus, NJ 07652**	8. PERFORMING ORGANIZATION REPORT NUMBER **BRG-056-F**
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release, distribution unlimited.

13. SUPPLEMENTARY NOTES

14. ABSTRACT
Development of precision manufacturing processes for rapid turnaround of products and affordable processing methods for Indirect Fire Systems weapon development programs

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**UU**	**8**	

1. Comments on Technical/Cost/Schedule Performance

Technical: Contract fully completed

Cost: Not applicable

Schedule: Contract fully completed

2. Initiative Quad Chart

Goals & Objectives	**Initiative Information**
Develop precision manufacturing processes for rapid turnaround of products, and affordable processing methods for Indirect Fire Systems weapon development programs.	**Initiative Lead**: CLogic LLC **Period of Performance**: 36 months
Milestones & Technical Achievements	**Implementation & Payoff**
All milestones have been completed	**Schedule**: March 2014 **Status**: 100% complete
	The technology developed will provide high speed, repeatable precision, clean optical processing, coating, finishing, and technologies to produce these armament products**.**
Current Status: Technical = Green Schedule = Green Cost = Green	

3. Supplemental Information

In order to improve the usefulness of the quad charts and provide DOTC with sufficient initiative information, the Quarterly Report must be supplemented with data described below.

3.1 Technical Achievements

Milestone Status:

Milestone No.	Deliverable Description	Completion %
1	Monthly Status Report	100
2	Cradle in accordance with drawing US81-0420	100
3	Pedestal in accordance with drawing US81-0624	100
4	Set of US81 Recoil Components in accordance with drawing US81-0500 with base plates	100
5	Gunner's Platform Test Rig Assembly in accordance with drawing LAV-GP-500	100
6	MPU Mounting Assembly 13021852 CROWS	100
7	Prototype laboratory Phase 1A - kickoff	100
8	Prototype VS-TOL mounting kits	100
9	Quarterly Business and Technical Status Reports	100
10	US81 weapon components	100
11	Prototype Power Data Hubs (PDH and PSG) Phase 1	100
13	DAGR and Portable Excaliber RDM Eng Phase 1	100
14	Quarterly Business and Technical Status Reports	100
15	Prototype Battery components	100
16	Prototype Power Data Hubs (PDH and PSG) Phase 2	100
17	Prototype Power Data Hubs (PDH and PSG) Phase 3	100
18	M119A2 Digital Fire Control equipment Phase 1	100
19	M119A2 Digital Fire Control equipment Phase 2a	100
20	US 81 Software and Control Rod	100
22	MRV mounting brackets	100
23	M119A2 Digital Fire Control equipment Phase 2b hydraulic fittings	100
24	Electro-mechanical US81 MM R2FPS Equipment	100
25	Electro-mechanical US81 MM R2FPS Fabrication	100
26	Fire Control System Magazine Tubes (8)	100
27	Fire Control System Special Magazine Tubes (4)	100
28	Fire Control System Fire Control Adapter Plates	100
29	Fire Control System Support	100
30	Electro-mechanical US81 weapon control actuators and control system components	100
31	DAGR and Portable Excaliber RDM Eng Phase 2	100
32	DAGR and Portable Excaliber RDM Eng Phase 3	100
33	DAGR and Portable Excaliber RDM Eng Phase 4	100
34	Quarterly Business and Technical Status Reports	100
35	Quarterly Business and Technical Status Reports	100
36	DAGR and Portable Excaliber RDM Eng Phase 5	100
37	LAV CLGG Launcher Phase 1	100
38	DAGR and Portable Excaliber RDM Eng Phase 6	100
39	LAV CLGG Launcher Phase 2	100
40	DAGR and Portable Excaliber RDM Eng Phase 7	100

41	LAV CLGG Launcher Phase 3	100
62	Quarterly Business and Technical Status Reports	100
43	LAV CLGG Launcher Phase 4	100
44	Prototype Power Data Hubs (PDH and PSG) Phase 4a M119 Cable 13033875	100
45	M119A2 Digital Fire Control equipment Phase 2b	100
47	LAV CLGG Launcher Phase 5	100
48	Prototype Laser Ignition System equipment	100
49	M119A2 Digital Fire Control equipment Phase 4 Spanning Yoke	100
50	Digital Fire Control equipment (Slip Ring)	100
50.1	Digital Fire Control equipment (ADIM)	100
50.2	Digital Fire Control equipment (Cable)	100
50.3	Digital Fire Control equipment	100
50.4	Digital Fire Control equipment	100
50.5	Digital Fire Control equipment (Ringfeeder)	100
50.6	Digital Fire Control equipment (Persak Plate)	100
50.7	Digital Fire Control equipment (IEE)	100
50.8	Digital Fire Control equipment	100
50.8A	Digital Fire Control equipment (moog Motor)	100
50.9	Digital Fire Control equipment (slip ring 2)	100
51	Prototype Battery, environmental enclosure, cables, brackets	100
52	LAV Components - 81 MM Phase 1	100
53	DAGR and Portable Excaliber RDM Eng Phase 10	100
54	LAV CLGG Launcher Phase 6	100
55	Quarterly Business and Technical Status Reports	100
56	LAV CLGG Launcher Phase 7	100
57	Annual Technical Status Reports	100
58	M119A2 Digital Fire Control equipment Phase 2c	100
59	M119A2 Digital Fire Control equipment Phase 2d	100
60	Prototype Battery components- ERE Radio	100
61	Prototype Power Location Cable Assemblies (PLA)/DAGR/Excaliber Phase 1	100
46	M119A2 Digital Fire Control equipment Phase 3 M119 Cables	100
63	Prototype AC Charging (ACC) Systems	100
64	Annual Status Report	100
65	Prototype Battery components	100
~~66~~	~~Prototype Power Distribution Unit (PDU)~~	100
67	Prototype Digital Gunner's Quadrant	100
68	LAV Components - 81 MM Phase 2	100
69	LAV CLGG Launcher Phase 8	100
70	Prototype Power Data Hubs (PDH and PSG) Phase 4b ERE testing	100
71	DAGR and Portable Excaliber RDM Eng Phase 9	100
72	LAV CLGG Launcher Phase 9	100
73	Quarterly Business and Technical Status Reports	100
74	LAV Components - 81 MM Phase 3	100

75	LAV CLGG Launcher Phase 10	100
76	LAV CLGG Launcher Phase 11	100
77	LAV Components - 81 MM Phase 4	100
78	LAV CLGG Launcher Phase 12	100
79	Quarterly Business and Technical Status Reports	100
80	LAV CLGG Launcher Phase 13	100
81	LAV CLGG Launcher Phase 14	100
82	Prototype Power Data Hubs (PDH and PSG) Phase 4c	100
83	LAV Components - 81MM Phase 5	100
84	LAV CLGG Launcher Phase 15	100
85	LAV Components - 81MM Phase 6	100
86	LAV CLGG Launcher Phase 16	100
87	LAV CLGG Launcher Phase 17	100
88	LAV CLGG Launcher Phase 18	100
89	LAV Components - 81MM Phase 8	100
91.01	Comb. Gas Gun Phase 1	100
91.02	Comb. Gas Gun Phase 2	100
91.03	Comb. Gas Gun Phase 3	100
91.04	Comb. Gas Gun Phase 4	100
91.05	Comb. Gas Gun Phase 5	100
91.06	Comb. Gas Gun Phase 6	100
91.07	Comb. Gas Gun Phase 7	100
91.08	Comb. Gas Gun Phase 8	100
91.09	Comb. Gas Gun Phase 9	100
91.1	Comb. Gas Gun Phase 10	100
91.11	Comb. Gas Gun Phase 11	100
91.12	Comb. Gas Gun Phase 12	100
91.13	81mm Mortar Weapon Development Phase 1	100
91.14	81mm Mortar Weapon Development Phase 2	100
92	LAV Components - 81MM Phase 7	100
93	Quarterly Business and Technical Status Reports	100
94	Quarterly Business and Technical Status Reports	100
95	Quarterly Business and Technical Status Reports	100
96	Quarterly Business and Annual Status Reports	100
97	Quarterly Business and Technical Status Reports	100
98	Quarterly Business and Technical Status Reports	100
99	ADIM 81 MM Long Lead Material	100
100	Quarterly Business and Technical Status Reports	100
101	ADIM Recoil	100
102	ADIM Magazine	100
103	ADIM Electronic Modules	100
104	ADIM Magazine Actuator & Encoder	100
105	ADIM Elevation Actuator	100
106	ADIM Rammer Actuator	100
107	ADIM Traverse Actuator & Encoder	100

108	ADIM Actuator Spares	100
109	ADIM Weapon Parts-Umbra	100
109.1	ADIM Weapon Parts-1-Kistler	100
109.2	ADIM Weapon Parts--2-13039663, 75, 75	100
109.3	ADIM Weapon Parts- -3-Shaft	100
109.4	ADIM Weapon Parts- -4-Alpine Bearings	100
109.5	ADIM Weapon Parts- 5-Ledex Solenoids	100
109.6	ADIM Weapon Parts- 6-Firing Actuator REV G	100
109.7	ADIM Weapon Parts-ADIM2 -7- REV J Changes	100
109.8	ADIM Weapon Parts-8- Moog Motors	100
109.9	ADIM Weapon Parts-9	100
109.1	ADIM Weapon Parts-10	100
109.11	ADIM Weapon Parts-11	100
109.12	ADIM Weapon Parts-12	100
109.13	ADIM Weapon Parts-13	100
109.14	ADIM Weapon Parts-14	100
109.15	ADIM Weapon Parts-15	100
109.16	ADIM Weapon Parts-16	100
109.17	ADIM Weapon Parts-17	100
110	Final Business Status Report	100
111	Final Technical Status Report	100

3.3 Technical Readiness Level Status and Technology Transfer Information:

Please indicate the current Technology Readiness Level (TRL) and technology transfer information for the prototype development effort based on the information requested and definitions in the chart (Insert chart number) below.

Technology Transition Information

1. Technology or technologies being worked on: Advanced Direct/Indirect 81MM Mortar. The weapon design will have the unique capability of providing direct fire (i.e. low quadrant elevation) as well as indirect fire. Fabrication of prototype components and vehicle integration is required to include; equipment required to operate the weapon (actuators), handle the ammunition (magazines), provide the weapon-to-vehicle interface (pedestal), multi-mode fuzes, power sources and integration of advanced component technologies. Fabrication of prototype weapon components is required to operate the weapon (actuators), handle the ammunition (magazines), and provide the weapon-to-vehicle interface (pedestal) need to be fabricated.

2. Is this technology an extension of a previous DOTC agreement or contract: No

3. System to which technology can transition: 81MM Mortar System

4. Commercial applications if applicable: not applicable

5. Government organizations or DoD Armed Force Services interested in technology other than AOR's organization: Special Operations Command (SOCCOM)

6. DoD Armed force services or organizations that could benefit from technology (not mentioned above): This system can likely transition as a Joint Services/NATO weapons system

7. Initial Technology Readiness Level (TRL) of technology at the start of agreement: 3

8. Current Technology Readiness Level (TRL) of technology: 4

9. Final Technology Readiness Level (TRL) of technology expected at end of agreement: 8

10. Next step in technology transition process: Test and validate the system. Generate a Level II TDP

3.3 Problems Encountered and Action Taken

None

3.4 Non-Traditional Defense Contractor Participation

Name of Nontraditional*	Planned Start Date	Actual Start Date	Reason for Deviation from Plan
CLogic Defense	7/15/09	8/1/09	
Metalcrafters Inc	8/1/09	8/1/09	
ES Metals	8/1/09	8/1/09	

3.5 Plans for Next Quarter:

Contract Completed